

REMARKS

Claims 2, 4, 7-9, 11, 15, and 17-55 are pending in the present application. Claims 1, 3, 5, 6, 10, 12 -14 and 16 have been canceled above in order to expedite prosecution. Claims 2, 4, 7, 15, 22, 40, 41 and 53 have been amended above to clarify the claim or to more accurately reflect the specification, and not to redirect claims to either new matter or to limit them in view of the art which is not directed to methods as claimed in the present application.

Claims 2, 4, 7-9, 11, 15, 17-39, 41-52 and 54-55 stand rejected under 35 U.S.C. §102(e) as unpatentable over U.S.P.N 5,490,097 issued to Swenson et al. (“Swenson”).

Independent Claim 2 recited, “... instantiating a plurality of objects by abstract or concrete classes,...” Since the definition of an abstract class explicitly precludes the instantiation of objects and the specification provided no such disclosure, the claim has been amended to more clearly and accurately reflect the specification and the accepted use of the terms of object technology. Additional language has been added to more clearly distinguish between model entities and the real world entities that are modeled and to explicitly claim an equivalent.

Applicant believes that the clarifications afforded by the amended language make the claim patentably distinguishable over Swenson which does not describe the recited, “customizing one or more abstract classes,” nor the recited, “concrete decision and data classes,” nor the recited basis for, “establishing an interdependence between,” one decision class and another, nor the recited, “providing a user of said method for modeling with an ability to generate additional subclasses of said abstract classes.”

Claims 4 and 11 are patentable at least for the reasons discussed above in that each of these claims depends directly from Claim 2.

The Rejection of amended, and now independent, Claim 7 is respectfully traversed on grounds that it recites, "... requiring said nodes to support participation of multiple persons in differentiated roles in each said abstract decision situations," The Examiner points to Swenson's Fig. 1, which figure Swenson describes as, "... a diagram illustrating a work process and the communications involved in a typical work process for processing a detected bug. [column 3, lines 40-42, underscore added]" There is no model described in Figure 1, much less the more specific, "network whose nodes are abstract decision situations" recited by the claim, so it is unclear how entities depicted in figure 1 support rejection of model entities.

The Examiner asserts, "... that in Swenson, the Submitter or Tester or Programmer has a role because each one is responsible for a task. [Advisory action mailed 1/15/04, underscore added]" However, the Examiner's assertion has no bearing on the issue of anticipation here, because the Examiner is pointing to a description of real world entities (i.e., Submitter, Tester, Programmer) to support alleged anticipation of modeled entities (i.e., roles). Modeled entities often have real world counterparts. The utility of models is derived, at least in part, from their mapping to aspects of the real world. But model entities are not anticipated by real world entities that they model, because model entities are abstractions, and abstractions are selective.

"A model is an abstract representation of reality that excludes much of the world's infinite detail. The purpose of a model is to reduce the complexity ... by eliminating the detail that does not influence its relevant behavior. Therefore, a model reveals what its creator believes is important [Curtis, Bill, et al., "Process Modeling," Communications of the ACM, Vol. 35, No. 9, September 1992, p.76, underscore added]"

"When we abstract some of the essential persisting features from the specific acts comprising role behavior we speak of roles. For example, we can speak of the role of the quarterback on a football team, in general terms of play selection without specifying the particular signals he barks to his teammates or the specific plays with which they respond. [Katz, Daniel and Kahn, Robert L., *The Social Psychology Of Organizations*, Wiley: New York, NY, 1966., p. 174, underscore added]"

"Abstraction is the selective examination of certain aspects of a problem. The goal of abstraction is to isolate those aspects that are important for some purpose and

suppress those aspects that are unimportant. Abstraction must always be for some purpose, because the purpose determines what is or is not important. Many different abstractions of the same thing are possible, depending on the purpose for which they are made. [Rumbaugh, James, *et al.*, *Object-Oriented Modeling and Design*, Prentice-Hall: Englewood Cliffs, NJ, 1991, p. 16, underscore added]"

The Examiner's rejection rests upon failure to distinguish between a real world entity and an abstract entity. Claim 7 does not recite that someone "has a role," but rather, that nodes of a network support participation of multiple persons in differentiated roles. Such modeling support is nowhere described in Swenson.

Furthermore, the roles which the Examiner alleges to be described in Swenson (i.e., Submitter, Tester, Programmer, Project Manager, Tester 1, Tester 2 or Test Lead) are actually described in Swenson, not as roles, but as individuals.

"FIG. 1 shows a diagram of a work process for processing a bug detected in some software. The process involves four individual users, a submitter 10, a tester 12, a programmer 14 and a project manager 16 [Column 4, line 65 - column 5, line 1, underscore added]."

In addition, a role is related to a context (e.g., in a *movie*, in an *organization*, in a *process*, in an *activity*). For example, like the quarterback role on a football team,

"The various members of a family interact in consistent ways in assuming their role [in the family] as father, mother, son, daughter, husband, and wife. ... The basic criterion, then, for studying role behavior is to identify the relevant social system or subsystem and locate the recurring events which fit together in converting some input to some output. [Katz, Daniel and Kahn, Robert L., *The Social Psychology Of Organizations*, Wiley: New York, NY, 1966, p. 174]

Therefore, if Submitter, Tester, Programmer, Project Manager, Tester 1, Tester 2 or Test Lead. were to be regarded as roles, they must be roles of individual users in a particular process, rather than as abstract roles associated with nodes representing abstract decision situations, as recited in Claim 7.

Furthermore, the only place where Swenson even describes more than one participant in an activity is in connection with Figures 16 and 17, where it is clear that each

participant associated with an activity having multiple participants has exactly the same role (see column 20, line 44 - column 21, line 4). Therefore, Swenson fails to describe modeling support for participation of multiple persons in differentiated roles associated with a network node, as recited by Claim 7.

Claims 8-9 are patentable at least for the reasons discussed above in that these claims depend, directly or indirectly, from Claim 7.

The Rejection of amended, and now independent, Claim 15 is respectfully traversed on grounds that it recites, "... using an object-oriented application framework to build and configure decision process models comprised of interdependent decisions, ..." The Examiner points to figure 2, which provides no description of the recited framework. As set forth in the application [column 17, line 30 - column 18, line 12] ,

"Abstract classes form the basis of a framework. If abstract classes factor out enough common behavior, other components, that is, concrete classes or other abstract classes, can be implemented based on the contracts offered by the abstract classes. A set of such abstract and concrete classes is called a framework.

"The term *application framework* is used if this set of abstract and concrete classes comprises a generic software system for an application domain. Applications based on such an application framework are built by customizing its abstract and concrete classes. In general, a given framework anticipates much of a software systems' design. The design is reused by all software systems built with the framework. (Wolfgang Pree, *Design Patterns for Object-Oriented Software Development*, Addison-Wesley: Reading, MA, 1995, p. 54.)"

Swenson does not describe any such framework.

Claim 15 further recites, "... rendering said process models as directed graphs, whose nodes are concrete classes modeling decisions, ..." The Examiner points to figure 2, which describes a network, but the nodes of this and every other model network described in Swenson are object instances rather than the recited object classes. Swenson states that, "The basic building block of this tree [depicted in Fig.5] is a C++ object that represent a stage of a work process plan (e.g., an oval shown in FIG. 2) [Column 11, lines 46-48]." The Examiner seems not to distinguish

between object instances and object classes, which, while related, are fundamentally different.

“The concepts of a class and an object are tightly interwoven, However, there are important differences between these two terms. [Booch, Grady, *Object-Oriented Analysis and Design with Applications*, 2nd ed., Benjamin/Cummings: Redwood City, CA, 1994,p. 103]”

Therefore, while Swenson describes model networks with nodes that are object instances, it does not describe the recited network with nodes that are concrete classes.

Claim 15 further recites, “... rendering said project models as a partition of the graph of the instantiating process, where such partition is defined by a specified node from the process graph and all and only those other nodes that are dependent on said specified node, ...” The Examiner points to columns 5-7. However there is no description there or anywhere else in Swenson which makes the recited distinction between a process model and a project model, nor any description of a graph that is a partition of another graph, much less the recited partition of claim 15.

The Rejection of independent Claim 17 is respectfully traversed on grounds that it recites, “... using a network or graph whose nodes are abstract decision situations representing choices to be made, which choices are modeled by concrete decision classes and by instances of those classes ... providing arc objects directed in each instance by an ordered pair of concrete decision classes associated with each arc object, where an entry or initial member of said ordered pair produces a data result required by an exit or terminal member of said ordered pair [underscore added].” To support his rejection, the Examiner points to columns 5-7, but nowhere in those columns does Swenson describe any such network. As argued above with respect to claim 15, the Examiner fails to distinguish between object instances and object classes. Swenson may describe a network whose nodes

are object instances, but nowhere describes a network whose nodes are concrete classes, much less the specific concrete classes recited by the claim. All of the networks described by Swenson (i.e., Figs 2, 2a, 5, and 6) have nodes that are object instances only, rather than object classes and instances of those classes as recited by claim 17.

Furthermore, Swenson does not describe a requirement for ordering the nodes of a network as recited by Claim 17. Swenson does describe a combination of “small circles [referred to as expectations]” and “arrows ... referred to as obligations,” [column 5, line 62 - column 6, line 22 and Fig. 2, items 52-72 and 52a-72a]. Swenson asserts that, “An arrow leading from a small circle pointing to another stages [sic.] generally mean [sic.] that the stage being pointed to are [sic.] ready to be and must be completed after the expected course of action represented by the small circle is performed [column 6, lines 4-7].” Even if this were construed as a description of a directed arc, there is no description of any basis for the direction, much less the specific basis recited by Claim 17. Even where Swenson describes the creation of the described circles and arrows [column 22, lines 32-67 and Fig. 19, items 416-426] it is entirely silent with regard to a basis for any ordering denoted by the entities so created. Therefore, while Swenson may describe an ordering of the nodes of a network, it describes no basis whatsoever for such ordering, much less the specific basis recited by Claim 17.

Claims 18-20 are patentable at least for the reasons discussed above in that these claims depend, directly or indirectly, from Claim 17.

The Rejection of independent Claim 21 is respectfully traversed on grounds that it recites a requirement for, “ An object-oriented application framework ... comprising (a) an abstract, extensible decision class ..., and an abstract, extensible data class ... , or alternatively, (b) a single abstract, extensible class which combines the attributes and

methods of said abstract decision and data classes,” whereas, as argued above with respect to claim 15, Swenson describes neither a framework nor any extensible classes, much less the specific extensible classes recited by Claim 21. In support of his rejection, the Examiner points to Figures 1-2 and columns 5 -7. However, in the cited figures and text, Swenson does not even describe (1) an object class, much less (2) an abstract class and even less (3) an abstract, extensible class, and still less (4) any of the specific abstract, extensible classes recited by Claim 21. Swenson may elsewhere describe object classes, and perhaps even an abstract object class, but nowhere describes any extensibility with respect to a class. Nor does Swenson anywhere describe an application framework of any kind, much less an application framework with the specific components and arrangements recited by Claim 21.

Claims 22-29 are patentable at least for the reasons discussed above in that these claims depend, directly or indirectly, from Claim 21.

The Rejection of independent Claim 30 is respectfully traversed on grounds that it recites, “... constructing a computer-based process model for each of said one or more work processes, wherein each said process model includes at least two instances of a first network; [and] requiring that each of said at least two instances of said first network be comprised of three or more nodes; ...” The Examiner points to Swenson’s figure 5 to support his rejection of these claim elements. Swenson says that, “FIG. 5 is a tree diagram of the organization of objects, representing stages in a work process, stored in the system shown in FIGS. 3 and 4. [Column 3, lines 58-60, underscore added].” Even if Figure 5 were to describe a process model composed of three or more nodes, it is nevertheless unclear how it describes including two instances of a network. Swenson’s figures 2a and 6, might be seen to describe one, specific process model that happens to include at least two instances of a network comprised of three or more nodes. However, the

claim does not recite a mere possibility of two instances of a network in some process model, but rather a requirement for each process model. Swenson fails to describe such a requirement. Indeed, Swenson's Figures 2 and 5 actually teach away from the recited requirement, by describing a process model comprised of a single network instance.

Claim 30 further recites, "... requiring that a first node of said three or more nodes model an activity of one of said one or more work processes; requiring that a second node of said three or more nodes model behaviors of a first role of a first participant in said activity; requiring that a third node of said three or more nodes model behaviors of a second role of a second participant in said activity;" Figure 5, cited by the Examiner, not only (1) fails to describe the recited two instances of a network, but (2) also fails to describe any node that models role behaviors of a participant in an activity modeled by another node of that same network, (3) much less two such nodes modeling two such role behaviors as recited by the claim. As argued above with respect to claim 7, the Examiner's rejection rests upon failure to distinguish between a real world entity and an abstract entity. Claim 30 does not recite that someone "has a role," but rather that particular nodes (i.e., a second node and a third node) of a network, model behaviors of two distinct roles. Such modeling is nowhere described in Swenson.

And, as also argued with respect to claim 7, what the Examiner alleges to be described in Swenson as roles, are actually described in Swenson as individuals, and if they were to be regarded as roles, they must be roles of individual users in a particular process, rather than two roles in an activity, much less roles in each of at least two activities in any modeled process, as recited in Claim 30.

Also as argued above with respect to claim 7, the only place where Swenson even describes more than one participant in an activity is in connection with Figures 16 and

17, where it is clear that each participant associated with an activity having multiple participants has exactly the same role (see column 20, line 44 - column 21, line 4).

Therefore, Swenson fails to describe modeling of behaviors of two or more roles in an activity as recited by Claim 30.

Claims 31-33 are patentable at least for the reasons discussed above in that these claims depend, directly or indirectly, from Claim 30.

The Rejection of independent Claim 34 is respectfully traversed on grounds that it recites modeling, "... participation of one or more persons in said each of said decision situations, said participation being modeled as at least two decision roles;" The Examiner points to Figures 2 - 6. However, there is nothing in the cited figures, nor anywhere else in Swenson, which describes (1) a role of any sort, much less (2) the more specific recitation of decision role, or (3) the yet more restrictive, at least two decision roles. Nor is there anything in the cited figures, or anywhere else in Swenson, which describes (4) the modeling of roles, much less (6) the modeling of decision roles in said each of said decision situations. As noted above, in rebuttal of the rejection of Claim 30, the Examiner asserts, "... that in Swenson, the Submitter or Tester or Programmer has a role because each one is responsible for a task. [Underscore added]" However, the Examiner's assertion again has no bearing on the issue of anticipation here, because Claim 34 does not recite that someone "has a role," but rather that participation of persons in each decision situation is modeled as at least two decision roles. Such modeling is nowhere described in Swenson.

Claim 34 further recites a requirement. "... that each of said at least two decision roles be associated with said each of said decision situations; ..." The Examiner again points to Figures 2 - 6, which contain nothing that describes this recited claim element.

Claim 34 further recites a requirement. “ ... that said each of said at least two decision roles have defined behaviors; ...” The Examiner cites Swenson’s Figure 5, which Swenson says, “ ... is a tree diagram of the organization of objects, representing stages in a work process, stored in the system shown in FIGS. 3 and 4. [Column 3, lines 58-60].” Swenson describes neither (1) a decision role, nor (2) any behaviors of any such role, much less (3) the more specific arrangement of those entities which is recited by Claim 34.

Claim 34 recites a further requirement, “ ... that said defined behaviors of said each of said at least two decision roles be differentiated from said defined behaviors of every other one of said at least two decision roles; ...” The Examiner points to Column 13, line 23 - column 14, line 40, where Swenson says that, “Each of the sub-colloquies are themselves [software] agents, containing [1] a short and long description, [2] name, [3] a responsible user or group of users and [4] an action table of expectations and corresponding obligations [Column 13, lines 60-63, underscore added].” The Examiner may be arguing with this citation that Swenson here describes a “responsible user” role. However, Swenson’s use of the term *responsible user* is far more modest.

“When the symbol for a stage is positioned, in block 412 (CCM), the colloquy context creates a VplActiveAgent C++ object (agent), such as that described in reference to Table 1, representing the stage.... , the system prompts for and accepts from the user, a short description of the stage, such as “Can the Problem be Fixed? 46a, a long description of the stage that appears on the viewer context screen (e.g., “Can you fix the problem, or should this report be deferred or rejected?” in FIG. 9), and [the identity of] the user or users responsible for the stage, such as Programmer 46b. The short description is stored in ShortDescription 460, the long description is stored in LongDescription 462 and [the identity of] the user or users responsible for the stage is stored in *Groups 464 [column 22, lines 5-23, underscore added; numerical references are to items in Fig. 19 or Table 1 in column 25].”

It should be clear from the above description that, rather than describing a

role as recited by the claim, Swenson merely uses the term *responsible user* to refer a instance variable of a VplActiveAgent C++ object (agent), which instance variable simply points to one or more individual users of the object containing that instance variable.

Even if one were to grant that Swenson describes a responsible user role, it still fails to describe the recited claim because it would describe at most one role while the claim recites “at least two roles,” and goes on to recite additional requirements nowhere described in Swenson, including (1) that each decision role be associated with each decision situation, (2) that each of the at least two roles have defined behaviors, (3) that the defined behaviors of each decision role be differentiated from those of every other decision role, and (4) that the defined behaviors of each decision role be invariant with respect all decision situations.

Claims 35–45 are patentable at least for the reasons discussed above in that these claims depend, directly or indirectly, from Claim 34..

The Rejection of independent Claim 46 is respectfully traversed on grounds that it recites, “... constructing a computer-based process model of each of said one or more work processes, wherein each said process model includes a network with a concrete object class at each node of said network; ...” The Examiner points to four extended sections of text and Figures 2 -6 in support of his rejection. What he sees there that describes the recited claim element is completely unclear. Swenson may describe either a process or a project model, “each of which includes a network,” and does describe a concrete object class, but Swenson does not describe the more specific recitation of the claim, because none of the networks described by Swenson contains (1) an object class at any node, much less (2) an object class at each node.

Claim 46 further recites: “ ... a customizable object class ... to model a

work element of any one of said one or more work processes; generating said concrete object class at each said node of each said process model by customizing said customizable object class; generating ... project models from each said... process model, wherein each of said one or more project models includes a network with an object instance of a concrete object class at each node; [and] requiring that each said object instance at the node of any of said one or more project models be an instance of said concrete object class at a corresponding node of said process model from which said project model has been generated; ...” It is again unclear why the Examiner points to the same four extended sections of text and Figures 2 -6. Swenson may describe either process models or project models that are networks with an object instance at each node of the network. However, in addition to there being no description in Swenson of (1) a modeled network with a concrete object class at each node, there is nothing in Swenson that describes (2) a customizable object class, nor (3) the generation of the object instances at the nodes of a network by customizing a class, nor (4) of one type of model being generated from another type of model, nor (5) of the recited requirement for correspondence between elements of such models. Swenson thus fails to describe at least five elements of the recited claim.

Claims 47-55 are patentable at least for the reasons discussed above in that these claims depend, directly or indirectly, from Claim 46.

Claims 40 and 53 stand rejected under 35 U.S.C. §103(a) as unpatentable over Swenson. These rejections are respectfully traversed on a basis that the Examiner’s rationale for rejection reflects an erroneous reading of Claims 40 and 53. The Examiner asserts that, “... It would have been obvious ... to know that it would be good business practice to mark documents with trademarks or copyright logos to indicate protection.”

The Examiner reads these claims as requiring “that a copyright notice and trademark be displayed on said document, ...” However, Claims 40 and 53 recite no such requirement. Rather, they narrow the requirement of Claims 39 and 52 respectively by specifying more precisely the “predetermined criteria” recited in Claims 39 and 52, that are to be used in a context, “... requiring that a copyright notice and trademark [notice] be displayed ...”

Reference to trademark and copyright notices as used in claims 40 and 53, does not establish a requirement for a copyright or trademark notice. Rather, it specifies more fully the required behavior of the inspector role in a specific context that happens to be characterized by a requirement for trademark and copyright notices. That the display of copyright and trademark notices is common is not disputed. Indeed it is that commonality that makes it useful to cite it as an noteworthy condition. But there is no recitation of any requirement for the display of either a copyright notice or a trademark as the Examiner asserts. Therefore, whether the use of trademark and copyright notices is or is not “good business practice” is not relevant to the claim.

Conclusion

For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for this amendment, or credit any overpayment, to a credit card as authorized by the executed Credit Card Payment Form (PTO-2038) submitted herewith.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to a credit card as authorized by the executed Credit Card Payment Form (PTO-2038) submitted herewith.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul M. Konnersman", with a long horizontal flourish extending to the right.

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